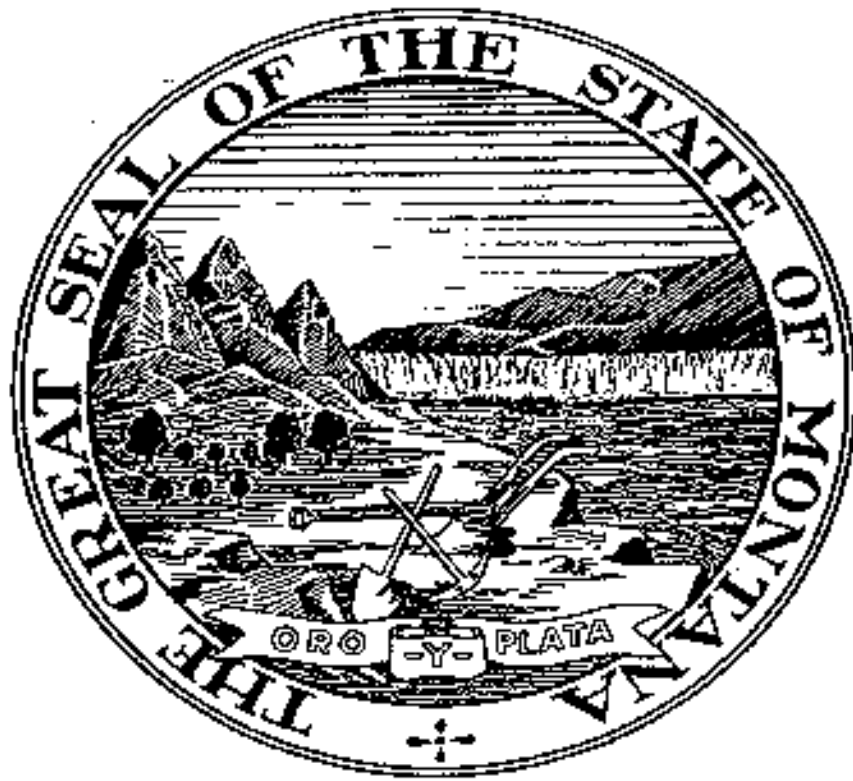


Sample
Chemical Hygiene Plan

For Laboratories

Occupational Safety and Health Bureau



Montana Department of Labor and Industry

Prepared for Montana Employers
by the

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This written chemical hygiene plan is intended only to serve as a sample, a means of assisting you in devising your own plan. Use of this sample does not guarantee compliance with all state and federal standards. Your plan must be tailored to the specific conditions and situations encountered in your workplace. Such a plan is required by OSHA standard 29 CFR 1910.1450 and The Montana Safety Act. By attempting to provide a written program for your employees, you will be demonstrating a “good faith” effort toward safeguarding the safety and health of your employees.

Chemical Hygiene Plan

for

_____ (Company Name)

The general intent of the chemical hygiene plan for _____ is:
(insert company name)

1. to protect laboratory employees from health hazards associated with the use of hazardous chemicals in our laboratory.
2. to assure that our laboratory employees are not exposed to substances in excess of the permissible exposure limits as defined by OSHA in 29 CFR 1910 subpart Z.

The plan will be available to all employees for review and a copy will be located in the following areas:

This plan will be reviewed annually by _____ (insert name or position), and update as necessary.

_____ (insert name) is designated as the Chemical Hygiene Officer. (See sections VI and VII for details.)

I. STANDARD OPERATING PROCEDURES to be followed in the laboratory relevant to safety and health when using chemicals.

[These are general procedures of laboratory operation which you likely already have in effect. Section E of Appendix A of 1910.1450 lists the following consideration:]

- | | |
|------------------------------------|------------------|
| A. Accidents, spills | R. Working alone |
| B. Avoidance of routine exposure | |
| C. Choice of chemicals | |
| D. Eating, drinking, smoking, etc. | |
| E. Equipment and glassware | |
| F. Exiting | |
| G. Horseplay | |
| H. Mouth suction | |
| I. Personal apparel | |
| J. Personal housekeeping | |
| K. Personal protection | |
| L. Planning | |
| M. Unattended operations | |
| N. Use of hood | |
| O. Vigilance | |
| P. Waste disposal and storage | |
| Q. Waste disposal and storage | |

[Section F of Appendix A of 1910.1450 includes additional safety recommendations:]

- A. Corrosive agents
- B. Electrically powered laboratory apparatus
- C. Fires, explosions
- D. Low temperature procedures
- E. Pressurized and vacuum operations
- F. Compressed gases
- G. Chemical Storage

Attached to this plan in Appendix _____ are the standard operating procedures in place at _____ (insert company name) for the safe handling of chemicals in our laboratory.

[Often this will be your laboratory safety manual which is already in place.]

[If you have the following programs, they can also be referenced:]

The written portion of the laser safety program is located _____.

The written portion of the radiation safety program is located _____.

The written portion of the biological safety program is located _____.

II. CRITERIA FOR USE OF CONTROL MEASURES TO REDUCE EMPLOYEE EXPOSURE TO HAZARDOUS CHEMICALS

A. The following operations shall be performed in LABORATORY FUME HOODS:

B. The following operations shall be performed in BIOLOGICAL SAFETY CABINETS:

C. The following operations shall be performed in GLOVE BOXES:

D. Respirators shall be used in accordance with the respiratory protection policy of _____ (insert company name), and with the OSHA respirator standard 29 CFR 1910.134. This policy and associated documentation is filed _____ (insert location) for employee review.

- E. Appropriate protective apparel compatible with the required degree of protection for substances handled shall be used. _____ (insert name of position) will advise employees on glove, gown, eye protection, barrier creams, etc. use. Permeability charts are available _____ (insert location).
- F. Employees will be instructed on the location and use of eye wash stations and safety showers _____ (insert name of position) is responsible for this instruction.
- G. Employees will be trained _____ (insert how often, example annually) on the use of fire extinguishers and other fire protection systems.

III. MAINTENANCE OF FUME HOODS AND OTHER PROTECTIVE EQUIPMENT

- A. **FUME HOODS** will be inspected every _____ months by _____ (insert name of position); adequacy of face velocity will be determined by _____ (insert method); reports of hood inspections are filed _____ (insert location) for employee review.

[Repeat the above for each additional major category of protective equipment, such as BIOLOGICAL SAFETY CABINET, VENTILATION OF STORAGE CABBINETS, INTERLOCKS ON HIGH VOLTAGE EQUIPMENT, SAFETY SHOWERS, EYEWASH STATIONS, etc., indicating how often they are inspected, by whom, what is measured, and where the inspection records and checklists are filed.]

IV. EMPLOYEE INFORMATION AND TRAINING

- A. Each employee covered by the laboratory standard will be provided with information and training so that they are appraised of the hazards of chemicals present in their work area. This training will be given at the time of initial assignment and prior to new assignments involving different exposure-situations. Refresher training will be given _____ (insert how often).
- B. The training/information sessions shall include:
1. The contents of 1910.1450 and its appendices. These shall be available to employees at _____ (insert location).
 2. The availability and location of the written chemical hygiene plan.
 3. Information on OSHA permissible exposure limits (PELS) where they exist, and other recommended exposure limits.
 4. Signs and symptoms associated with exposure to hazardous chemicals in laboratories.
 5. Location of reference materials including all MSDSs received, on the safe handling of chemicals in laboratories.

6. Methods to detect the presence or release of chemicals (ie. monitoring, odor thresholds, etc.).
 7. The physical and health hazards of chemicals in laboratory work areas.
 8. Measures to protect employees from these hazards, including:
 - a. Standard operating procedures
 - b. Work practices
 - c. Emergency procedures
 - d. Personal protective equipment
 - e. Details of the chemical hygiene plan
- C. _____ (insert name of position) is responsible for conducting the training sessions which will consist of _____ (insert training methods, eg. videotape, slide tape, lecture, etc.). An outline of the training program is in Appendix _____. [An outline is included in this packet, which can be modified for your use.]
- D. Each employee will sign a form documenting that they have received training. [Sample form included in this packet. Note that a signed form does not necessarily mean that person has understood and retained the training provided. An enforcement officer would determine training based on employee interviews, and employee knowledge.]
- E. _____ (insert name of position) is responsible for the developing standard operating procedures. _____ (name of position) is responsible for the portion of training on standard operating procedures.

V. PRIOR APPROVAL FOR SPECIFIC LABORATORY OPERATIONS

Certain laboratory procedures which present a serious chemical hazard require prior approval by _____ (insert name of position) before work can begin. For this facility, these procedures include:

- A. Work with select carcinogens
- B. Work with reproductive hazards
- C. Work with neurotoxins
- D. Work with acutely hazardous chemicals (*Consider the 8 physical hazards as well as the health hazards in the determination.*)

These chemicals include:

_____ (insert a list of the acutely hazardous chemicals, for example cyanide)

[If the laboratory does not utilize these classes of chemicals then include a sentence which states "Our laboratory does not at this time use any chemicals which are sufficiently hazardous to require prior approval before they are used.]

VI. MEDICAL CONSULTATION AND EXAMINATION

_____ (insert company name) shall provide, to affected employees, medical attention including followup examinations which _____ (insert clinic or physician name) determines is necessary under the following circumstances:

- A. Whenever an employee develops signs and symptoms associated with a hazardous chemical to which they may have been exposed, the employee shall be provided an opportunity to receive appropriate medical examination. The employee shall contact the Chemical Hygiene Officer to initiate the medical program.
- B. Where exposure monitoring reveals an exposure level routinely above the OSHA action level (AL) (or in the absence of an action level, exposure above the OSHA permissible exposure level (PEL) for OSHA regulated substances for which there are medical monitoring and medical surveillance requirements, medical surveillance shall be established for that employee.

Currently our laboratory uses:

- 1. _____ (e.g. Benzene)
 - 2. _____ (e.g. Formaldehyde)
 - 3. _____ (list other substances covered)
- all of which have a separate OSHA standard with medical surveillance requirements.
(If none of these substances is used, indicate that no substances for which OSHA has medical monitoring requirements are being used.)

- C. Whenever an event takes place in the work area, such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee, laboratory or custodial, shall be provided an opportunity for a medical consultation. This consultation is for the purpose of determining the need for a medical examination.
- D. All medical examinations and consultations are provided for by _____ (insert physician's name) [or at _____ (insert clinic/hospital name.)]. All aspects of these examinations are provided by a licensed physician, or supervised by a licensed physician. These examinations are provided without cost to the employee, without loss of pay, and at a reasonable time and place.
- E. The _____ (insert name of position, eg. Chemical Hygiene Officer) will provide the following information to the physician:
 - 1. Identity of the hazardous chemical to which the employee may have been exposed.
 - 2. A description of the conditions of the exposure including exposure date if available.
 - 3. A description of signs and symptoms of exposure that the employee is experiencing (if any).

F. The written opinion that the company receives from the physician shall include:

1. Recommendations for future medical followup.
2. Results of examination and associated tests.
3. Any medical condition revealed which may place the employee at increased risk as the result of a chemical exposure.
4. A statement that the employee has been informed by the physician of the results of the examination/ consultation and told of any medical conditions that may require additional examination or treatment.

G. The material returned to _____ (insert company name) by the physician shall not include specific findings and diagnosis which are unrelated to occupational exposure.

VII. RESPONSIBILITIES UNDER THE CHEMICAL HYGIENE PLAN

_____ (insert name of position or individual) is designated as the chemical hygiene officer for _____ (insert company name). [The qualifications for this individual are important. This person *should have a background in both chemistry and safety.*]

A chemical hygiene committee shall be formed. The membership list and minutes of their meetings are filed _____ (insert location) for employee review.

[You may wish at this point to follow the categories in Appendix A of the Lab Standard 1910.1450 and assign some chemical hygiene duties to all staff. The categories used in the appendix are:]

Chief Executive Officer

Department Supervisor

Chemical Hygiene Officer

Laboratory Supervisor

Project Director

Laboratory Worker

[You may wish to designate your existing safety committee or a sub group of that committee as your chemical hygiene committee.]

VIII. ADDITIONAL PROTECTION FOR WORK WITH SELECT CARCINOGENS, REPRODUCTIVE TOXINS, AND CHEMICALS WITH HIGH ACUTE TOXICITY.

When any of these chemicals are used, the following provisions shall be employed where appropriate:

1. Establishment of a designated area.
2. Use of containment devices such as fume hoods or glove boxes.
3. Procedures for safe removal of contaminated waste.
4. Decontamination Procedures.

[Appendix A of the standard has detailed programs for working with these chemicals. If you are using them, refer to Appendix A as a guide for your detailed procedures.]

[Note that according to the standard, a SELECT CARCINOGEN means any substance which meets one of the following criteria: (i) it is regulated by OSHA as a carcinogen; or (ii) it is listed under the category, "known to be carcinogens," in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) (latest edition); or (iii) it is listed under Group 1 ("carcinogenic to humans") by the International Agency for Research on Cancer Monographs (IARC) (latest editions); or (iv) it is listed in either Group 2A or 2B by IARC or under the category, "reasonably anticipated to be carcinogens" by NTP,....]

Appendix _____ to this plan includes the special procedures used in this laboratory for the use of these chemicals.

IX. EMERGENCY RESPONSE

[There are two additional OSHA standards which interface with the Chemical Hygiene Plan; 1910.38 Employee Emergency Plans and Fire Prevention Plans, and 1910.120(p) and (q) Hazardous Waste Operations and Emergency Response (developed in response to SARA Title III) . Please review these to standards and develop appropriate emergency procedures for your facility if your facility is covered by one of these standards.]

Appendix _____ is our company's emergency action plan under 1910.38.

Appendix _____ is our company's emergency response plan under 1910.120.

LABORATORY STANDARD TRAINING

I. Occupational exposure to hazardous chemicals in laboratories standard (29 CFR 1910.1450)

- A. Content of the standard and appendices.
- B. Location and explanation of the chemical hygiene plan.
- C. Location of reference materials and material safety data sheets (MSDS).
- D. Details of access to medical consultation and management system.

II. Physical Hazards

- A. Combustible liquids
- B. Compressed gas
- C. Explosive
- D. Flammable
- E. Organic peroxide
- F. Pyrophoric
- G. Unstable (reactive)
- H. Water reactive

III. Health Hazards

- A. Local
 - 1. Irritants
 - 2. Corrosives
- B. Systemic
 - 1. Toxics
 - a Acute/Chronic
 - b Nervous System Effects
 - c Respiratory System Effects
 - d Reproductive System Effects
 - 2. Sensitizers
 - 3. Carcinogens

IV. Route of Exposure

- A. Inhalation
- B. Skin Absorption
- C. Ingestion

V. Amount of Absorption

- A. Gases/Vapors
- B. Particulates
 - 1. Dust
 - 2. Mist
 - 3. Fume

VI. Dose

- A. Work Practices
- B. Personal Hygiene
- C. Weight
- D. Personal Protective Equipment
- E. Environmental Controls

VII. Duration of Exposure

VIII. Exposure Limits including PELs

- A. Definition
- B. Established by:
 - 1. Chemical similarity
 - 2. Animal studies
 - 3. Human studies

IX. Air Sampling

- A. Required by OSHA
- B. Employee reports of illness
- C. Confined space work
- D. Other

X. Response

- A. Age
- B. Gender
- C. Body size
- D. Health status
- E. Personal habits
- F. Other exposures

XI. Employee Concerns

- A. Symptoms limited/many causes
- B. Documentation

- C. Referral
- D. Refusal to work

XII. Company Specific Standard operating Procedures

Training Documentation

Topic: _____ Date: _____
(Attach outline of material covered)

Name

Department